



**boston planning &  
development agency**

# Unpacking Boston's FY2023 NIH Funding

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This report provides an in-depth analysis of the NIH funding sent to Boston researchers in fiscal year 2023, demonstrating the City's significant role as a leader in medical research. It explores how Boston's renowned hospitals, top universities, and thriving life sciences industry lead the nation in NIH funding, driving groundbreaking advancements in science and medicine, and solidifying the City's reputation as a global hub of innovation in the biomedical field.

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Arthur Jemison, Director

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## About NIH

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The National Institutes of Health (NIH), part of the U.S. Department of Health and Human Services, is the largest source of funding for medical research in the world. Its mission is “to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.”<sup>1</sup> NIH is made up of 27 Institutes and Centers, each with a specific research agenda.<sup>2</sup> More than 80% of the \$48 billion NIH budget goes to funding researchers outside the NIH – at more than 2,500 universities and research organizations.<sup>3</sup>

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## Boston's FY2023 NIH Funding

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Boston's status as a global leader in life sciences is closely tied to the significant support it receives from NIH. In fiscal year 2023, running from October 1, 2022, to September 30, 2023, Boston received the second-highest amount of NIH funding of any city

nationwide at more than **\$2.5 billion in 4,245 total grants to 50 organizations**. Boston accounted for 6.6 percent of all NIH funding sent to United States organizations last fiscal year, and 71.5 percent of funding sent to Massachusetts organizations.

**TABLE 1** Top 10 Organizations in Boston by NIH Funding  
FY2023

| Rank | Organization Name                       | Awards | Funding in Millions |
|------|---|--------|---------------------|
| 1    | Massachusetts General Hospital          | 1,079  | \$675               |
| 2    | Brigham and Women's Hospital            | 676    | \$403               |
| 3    | Boston Children's Hospital              | 439    | \$239               |
| 4    | Boston University, Medical Campus       | 292    | \$197               |
| 5    | Harvard Medical School                  | 362    | \$175               |
| 6    | Dana-Farber Cancer Institute            | 239    | \$163               |
| 7    | Harvard School of Public Health         | 162    | \$150               |
| 8    | Beth Israel Deaconess Medical Center    | 222    | \$126               |
| 9    | Tufts University, Boston Campus         | 148    | \$77                |
| 10   | Boston University, Charles River Campus | 171    | \$66                |

Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

Most NIH funding sent to Boston institutions were received by the City's leading hospitals and medical schools. **Massachusetts General Hospital received the most funding** in over 1,000 awards during FY2023. Brigham and Women's Hospital and Boston Children's Hospital took the second and third

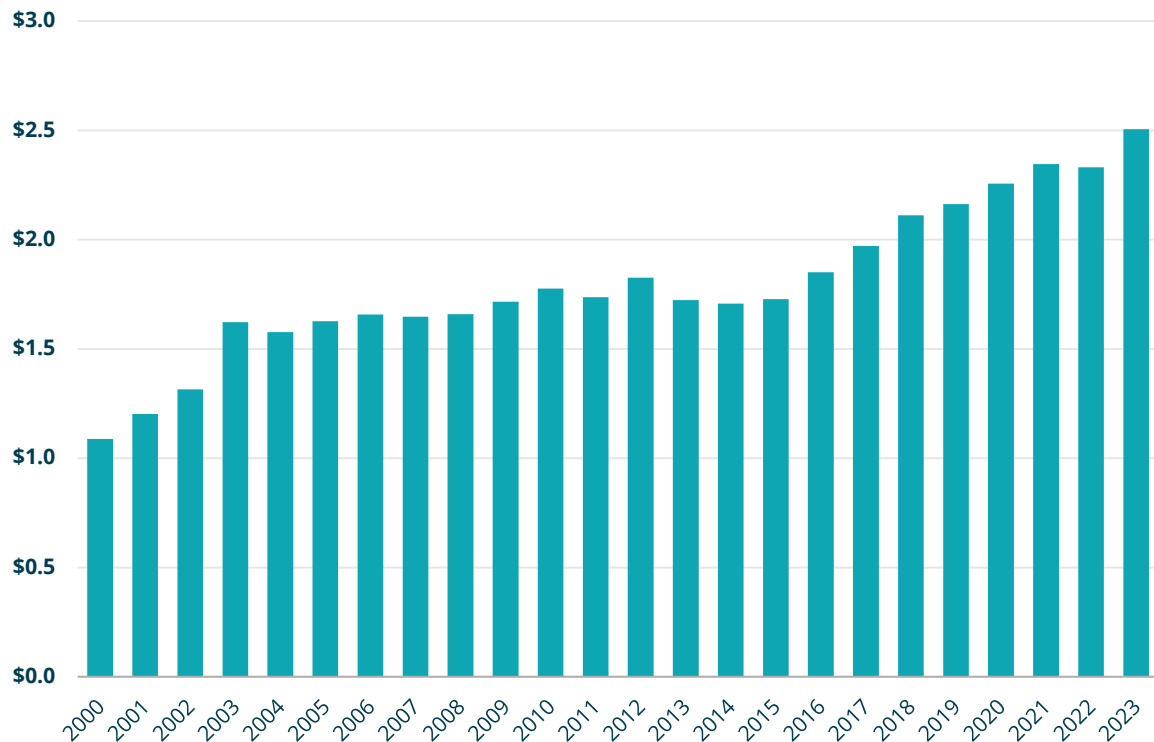
spots, respectively, in top recipients of funding. Several private companies specializing in biomedical research also received funding. Most private companies, however, only received one award each, and the bulk of Boston's funding went to larger healthcare institutions.

## Boston's NIH Funding Over Time

Boston has a well-established history of NIH funding. Since FY2000, the City's organizations have received more than **\$43 billion from NIH**, fueling decades of life sciences research. FY2023 marks the most ever

annual funding received by organizations in Boston. From FY2014 onward, the City of Boston has generally experienced an **upward trend** in annual NIH funding, with the exception of a slight dip in FY2022.

**FIGURE 1 Annual NIH Funding Awarded to Boston Organizations**  
FY2000 - FY2023, in billions of nominal dollars



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2000 - FY2023, BPDA Research Division Analysis.

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## Top Funded U.S. Cities

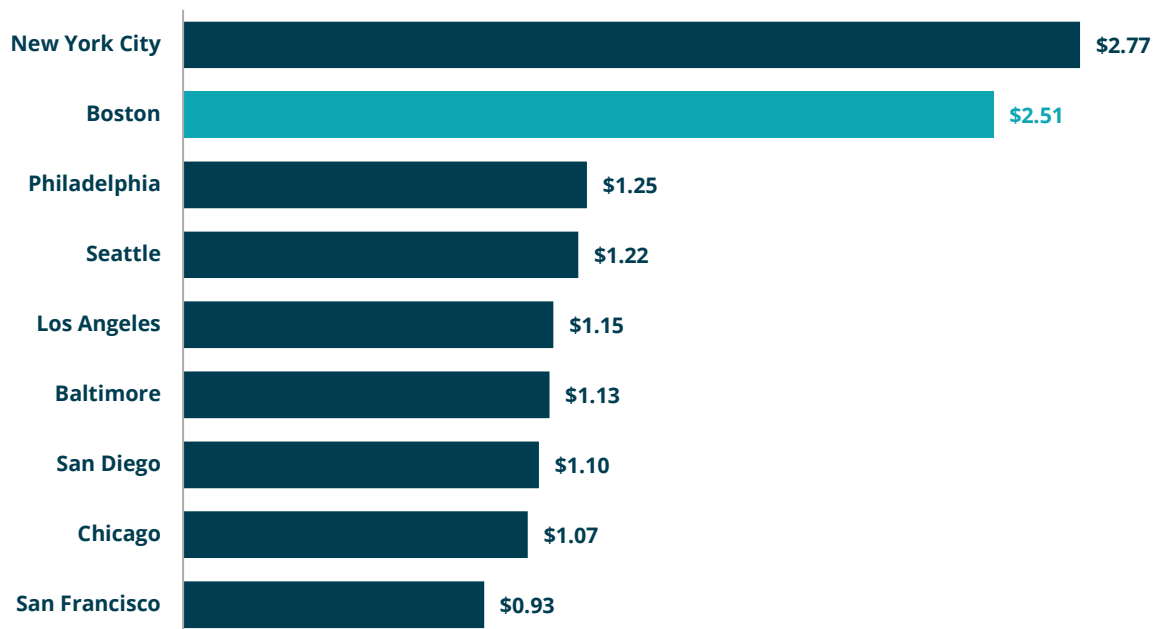
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**Boston ranked second in total NIH funding in FY2023**, receiving about \$250 million less than New York City. Boston received \$3,763 in NIH funding per capita in FY2023, the **highest per capita funding** among the top 10 funded cities, and a \$298 per cap-

ita increase from FY2022. Following New York City and Boston are Philadelphia, Seattle, and Los Angeles, with each city receiving less than half the amount of funding as Boston.

**FIGURE 2** **Top 10 U.S. Cities in NIH Funding**

FY2023, in millions of dollars



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

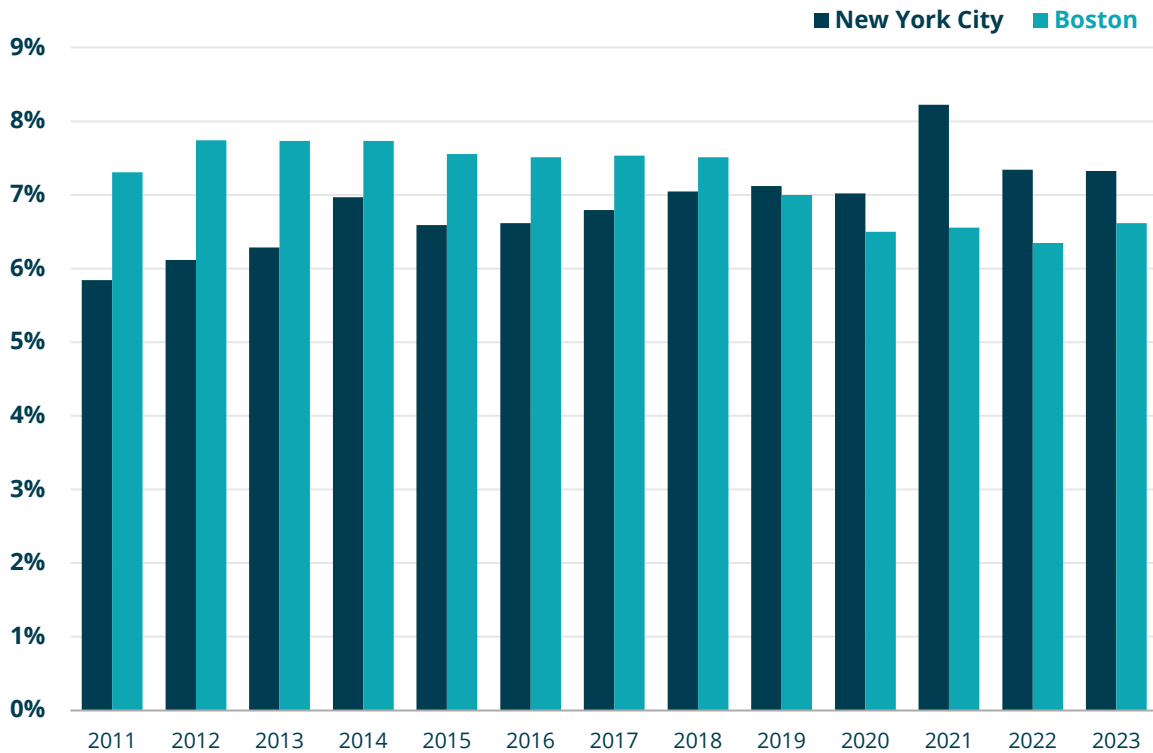
The top 10 cities received about 37 percent of total domestic funding. **Boston received about 6.6 percent**, increasing slightly from 6.3 percent in FY2022. Boston was the leading U.S. city in annual NIH fund-

ing prior to FY2019, but has since been surpassed by New York City, which received 7.3 percent of total U.S. funding in FY2023.

FIGURE 3

### Annual NIH Funding Awarded to Boston and New York City

FY2011 - FY2023, as a share of total domestic funding



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2011 - FY2023, BPDA Research Division Analysis.

## Top Funded U.S. Organizations

Boston's two largest hospitals, Massachusetts General Hospital (ranked 7th) and Brigham and Women's Hospital (ranked 24th), were **two of only three hospitals listed among the top 25** NIH funding recipients in the United States. Together they received 1,755 awards and over \$1 billion in funding.

Their combined funding represents 31 percent of all funding in Massachusetts and 43 percent of Boston's entire NIH funding. Aside from the top-funded U.S. organization, Leidos Biomedical Research, Inc., and a handful of others, the top organizations that received funding are higher education institutions.

**TABLE 2** **Top 25 U.S. Organizations Receiving NIH Funding**  
FY2023

| Rank      | Organization Name                         | City                  | Awards       | Funding in Millions |
|-----------|---|-----------------------|--------------|---------------------|
| 1         | Leidos Biomedical Research, Inc.          | Frederick, MD         | 81           | \$866               |
| 2         | Johns Hopkins University                  | Baltimore, MD         | 1,490        | \$843               |
| 3         | University of California, San Francisco   | San Francisco, CA     | 1,484        | \$789               |
| 4         | University of Pennsylvania                | Philadelphia, PA      | 1,322        | \$703               |
| 5         | Duke University                           | Durham, NC            | 1,025        | \$702               |
| 6         | University of Michigan, Ann Arbor         | Ann Arbor, MI         | 1,397        | \$698               |
| <b>7</b>  | <b>Massachusetts General Hospital</b>     | <b>Boston, MA</b>     | <b>1,079</b> | <b>\$675</b>        |
| 8         | University of Pittsburgh                  | Pittsburgh, PA        | 1,247        | \$658               |
| 9         | Washington University                     | Saint Louis, MO       | 1,187        | \$633               |
| 10        | Columbia University Health Sciences       | New York, NY          | 1,073        | \$633               |
| 11        | Stanford University                       | Stanford, CA          | 1,179        | \$629               |
| 12        | Yale University                           | New Haven, CT         | 1,170        | \$622               |
| 13        | University of California, Los Angeles     | Los Angeles, CA       | 898          | \$580               |
| 14        | University of California, San Diego       | San Diego, CA         | 1,087        | \$572               |
| 15        | University of North Carolina, Chapel Hill | Chapel Hill, NC       | 1,020        | \$560               |
| 16        | University of Washington                  | Seattle, WA           | 1,040        | \$558               |
| 17        | Research Triangle Institute               | Research Triangle, NC | 107          | \$551               |
| 18        | Icahn School of Medicine at Mount Sinai   | New York, NY          | 753          | \$501               |
| 19        | Emory University                          | Atlanta, GA           | 894          | \$485               |
| 20        | University of Wisconsin-Madison           | Madison, WI           | 686          | \$447               |
| 21        | Vanderbilt University Medical Center      | Nashville, TN         | 598          | \$429               |
| 22        | New York University School of Medicine    | New York, NY          | 594          | \$425               |
| 23        | Northwestern University Chicago           | Chicago, IL           | 725          | \$413               |
| <b>24</b> | <b>Brigham and Women's Hospital</b>       | <b>Boston, MA</b>     | <b>676</b>   | <b>\$403</b>        |
| 25        | University of Minnesota                   | Minneapolis, MN       | 794          | \$378               |

Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

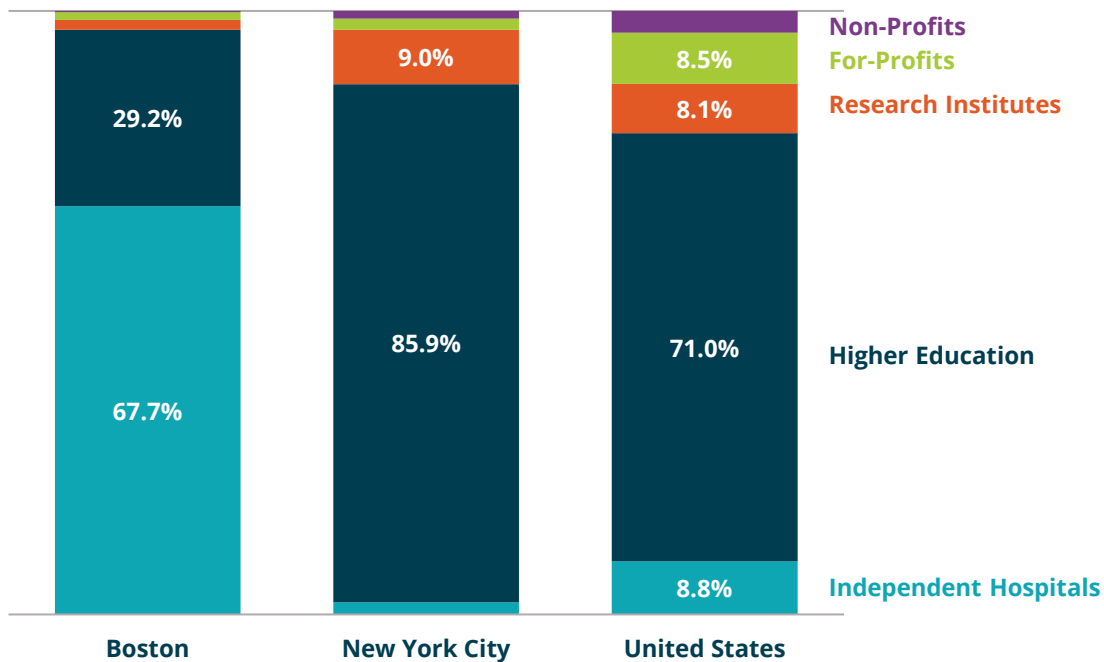


## Funding by Organization Type

Boston's prominence as a healthcare research hub can be attributed to its world-class hospitals. **NIH funding to hospitals exceeded two-thirds of Boston's total NIH funding** in FY2023 compared to only 8.8 percent of national funding sent to hospitals. The NIH also provides vital funds to research institutes, private companies, and other organizations. The major research institutes that received NIH funding in Boston were the Joslin Diabetes Center and the Schepens Eye Research Institute, an affiliate of Massachusetts Eye and Ear Infirmary.

Despite Boston's robust hospital funding, the vast majority of NIH funding allocated across the country was granted to higher education institutions. In fact, 86 percent of New York City's NIH funding was directed towards higher education. Boston's independent hospitals, however, are **closely affiliated with Boston's leading medical schools and universities**, and many serve as teaching hospitals for medical students.

**FIGURE 4** NIH Funding by Type of Institution  
FY2023



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

## Hospitals and Health Centers

The funding awarded to Boston's hospitals alone exceeds total funding received by any other city, with the exception of New York City, demonstrating the NIH's recognition of Boston's hospitals as national leaders in healthcare and biomedical research. The top ten Boston hospitals were granted 2,853 awards and \$1.7 billion in funding, which represents 49 percent

of all funding in Massachusetts and 68 percent of all funding in Boston. **Five of the top ten NIH-funded independent hospitals in the United States were located in Boston**, receiving more than half of NIH funding allocated to independent hospitals nationwide. Additionally, among the top 25 NIH-funded hospitals in the country, Boston claims eight.

**TABLE 3** Top 10 U.S. Hospitals Receiving NIH Funding  
FY2023

| Rank | Organization Name                             | City              | Awards      | Funding in Millions |
|------|---|-------------------|-------------|---------------------|
| 1    | <b>Massachusetts General Hospital</b>         | <b>Boston, MA</b> | <b>1079</b> | <b>\$675</b>        |
| 2    | Vanderbilt University Medical Center          | Nashville, TN     | 598         | \$429               |
| 3    | <b>Brigham and Women's Hospital</b>           | <b>Boston, MA</b> | <b>676</b>  | <b>\$403</b>        |
| 4    | <b>Boston Children's Hospital</b>             | <b>Boston, MA</b> | <b>439</b>  | <b>\$239</b>        |
| 5    | Cincinnati Children's Hospital Medical Center | Cincinnati, OH    | 311         | \$170               |
| 6    | Children's Hospital of Philadelphia           | Philadelphia, PA  | 313         | \$166               |
| 7    | <b>Dana-Farber Cancer Institute</b>           | <b>Boston, MA</b> | <b>239</b>  | <b>\$163</b>        |
| 8    | <b>Beth Israel Deaconess Medical Center</b>   | <b>Boston, MA</b> | <b>222</b>  | <b>\$126</b>        |
| 9    | Seattle Children's Hospital                   | Seattle, WA       | 152         | \$116               |
| 10   | St. Jude Children's Research Hospital         | Memphis, TN       | 155         | \$116               |

Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

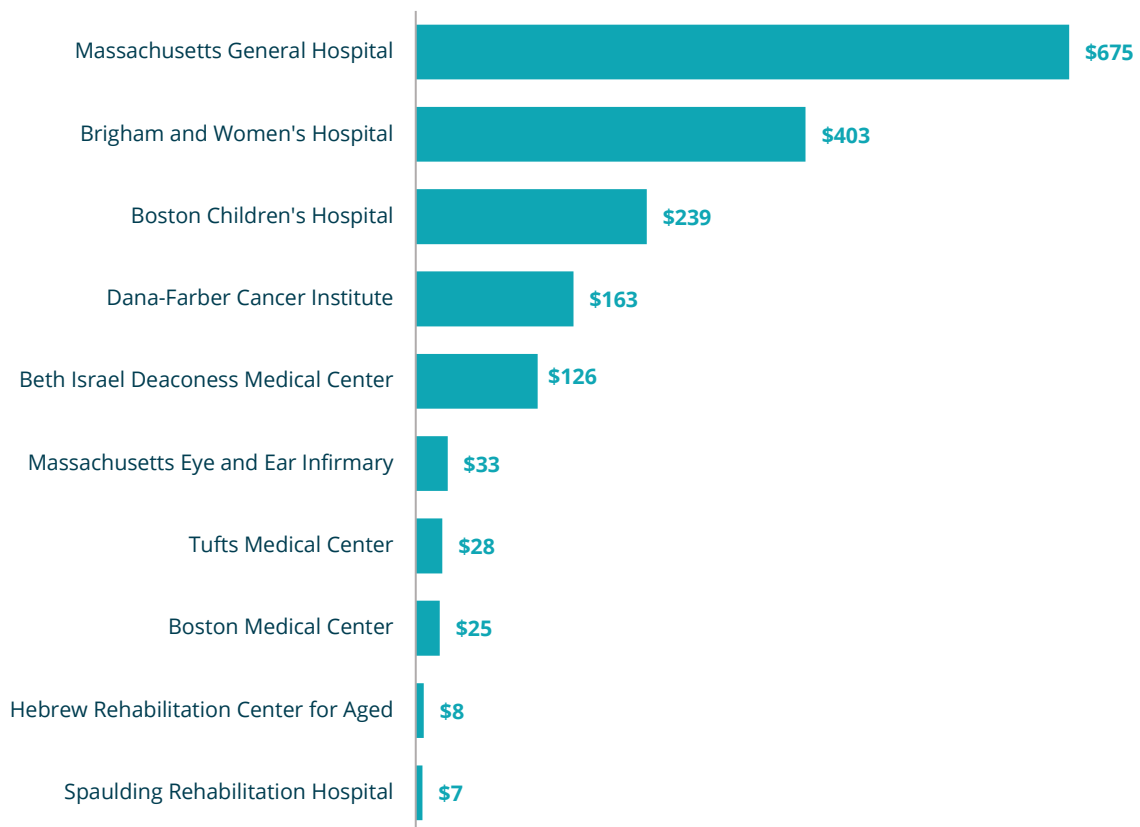
Massachusetts General Hospital was the top NIH-funded hospital in the United States, and Brigham and Women's Hospital and Boston Children's Hospital took the third and fourth spots, respectively. All three of Boston's top hospitals, in ad-

dition to a handful of other NIH-funded hospitals, are members of Mass General Brigham, an integrated health care system and national leader in biomedical research. Mass General Brigham members serve as teaching hospitals for Harvard Medical School.<sup>4</sup>

As the top-funded hospital, Massachusetts General **received 27 percent of all grants to hospitals in Boston**, with research involving more than 9,500 people across 30 departments and 1.3 million square feet of research space, making it home to the **largest hospital-based research enterprise in the country**.<sup>5</sup> While Massachusetts General Hospital is situated near downtown Boston in the West End, **most NIH-funded Boston hospitals are located in the Longwood Medical Area**, a sprawling campus of 21 medical and academic institutions. Longwood

is home to Brigham and Women's, Boston Children's, Dana-Farber Cancer Institute, and Beth Israel Deaconess Medical Center. Harvard Medical School and Harvard School Public Health are also located in the Longwood Medical Area, making it an **epicenter of medical training, research, and health care**. Longwood employs 68,000 people, educates 27,000 students, and treats 2.8 million patients annually.<sup>6</sup> Organizations in Longwood were **awarded \$1.4 billion** of Boston's NIH funds in FY2023, which exceeds NIH funding received by each of 43 states.

**FIGURE 5** Top Boston Hospitals Receiving NIH Funding  
FY2023, in millions of dollars



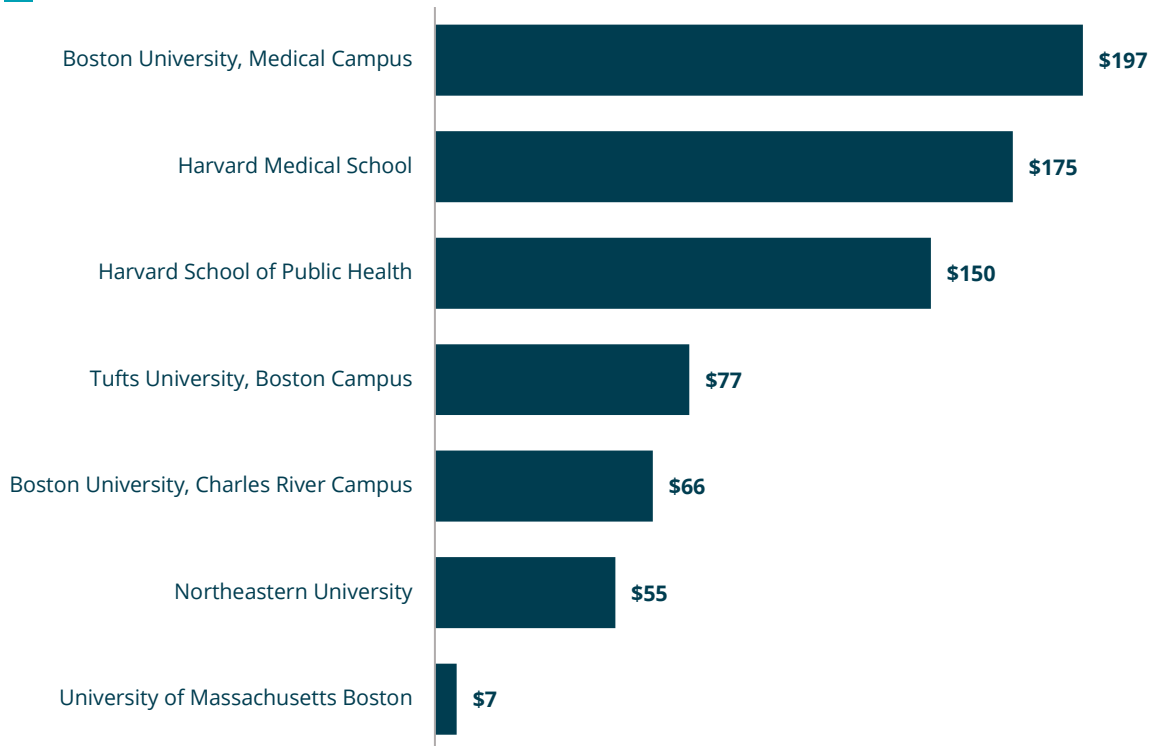
Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

# Higher Education

Boston's success in biomedical research is attributed to its highly educated workforce, with 53% of Bostonians aged 25 and over holding a Bachelor's degree or higher, compared to 34% nationally.<sup>7</sup> The City's colleges and universities enrolled 159,720 undergraduate and graduate students in Fall 2022, representing about 18% of Massachusetts' total student population, despite less than 10% of the state's population living in Boston.<sup>8</sup> This concentration of scholars benefits companies, hospitals, and research institutes in

Boston, leveraging partnerships with prestigious educational institutions and the surrounding advanced industries in biotechnology, science, and healthcare. Prospective students and graduates are drawn to Boston for these established collaborations, which enhance opportunities in these thriving sectors. **Boston University's Medical Campus in the South End leads Boston higher education in NIH funding**, but is followed closely behind by Harvard Medical School and Harvard School of Public Health.

**FIGURE 6** Top Boston Higher Education Institutions Receiving NIH Funding  
FY2023, in millions of dollars



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

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## Private Companies

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Boston attracts innovative private companies that are at the forefront of medical advancements. These companies, fueled by NIH funding, are **pioneering new treatments and technologies to address critical healthcare challenges**. From antimicrobial drug discoveries to regenerative medicine and breakthrough therapies for neurological disorders, Boston's private sector plays a pivotal role in shaping the future of healthcare. Here are some of the top private recipients of NIH funding in FY2023:

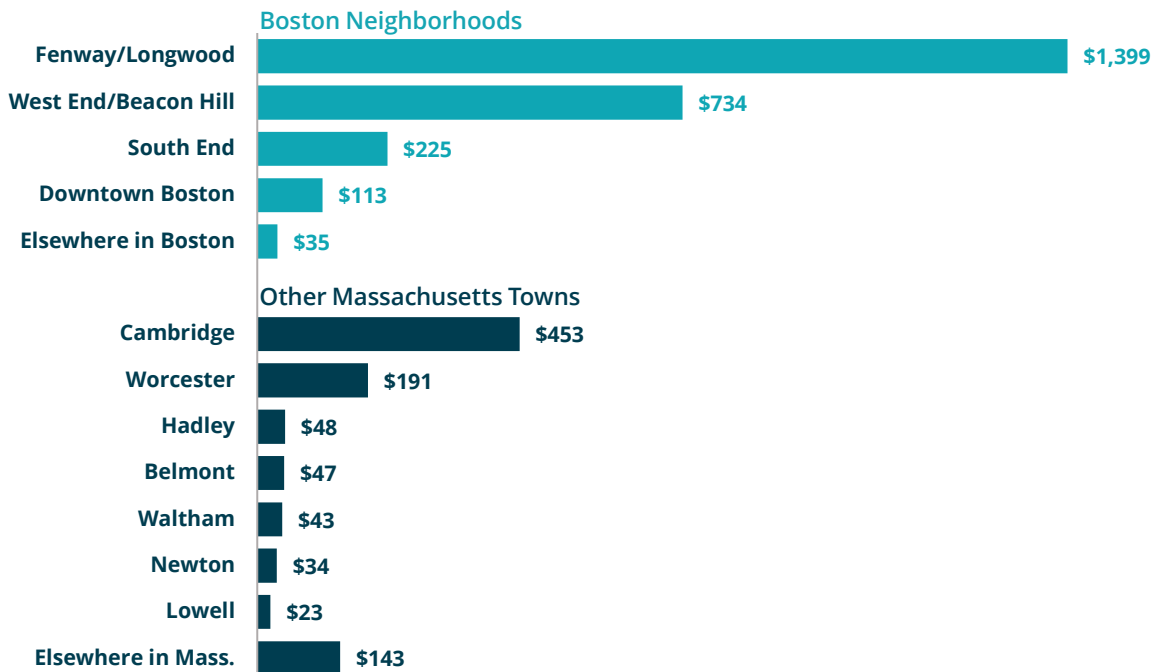
- Arietis is a biotechnology company located at Boston University's Bio Square Discovery and Innovation Center in the South End. Arietis' primary focus is antimicrobial drug discoveries that will transcend current treatments for chronic bacterial infections such as MRSA. Receiving \$3.2 million in three total grants from the NIH in FY2023, Arietis was the top-funded NIH recipient of all private companies in Boston.<sup>9</sup>
- Centrexion Therapeutics Corporation was the second-ranked private company in NIH funding in FY2023, receiving just above \$3 million in one grant. Centrexion is a late clinical-stage biopharmaceutical company located in downtown Boston focused on developing non-opioid therapies that could be used to treat a variety of chronic pain conditions.<sup>10</sup>
- Gel4Med is an innovative regenerative medicine company pioneering a synthetic tissue designed to combat antibiotic-resistant bacteria in wounds while facilitating tissue regeneration, without relying on external antibiotics or biologics. Located in Allston, Gel4Med received \$2.3 million in two grants from NIH in FY2023.<sup>11</sup>
- PASCALL Systems, Inc. is an early-stage medical device startup developing novel technology spun off from research labs at the Massachusetts General Hospital and the Massachusetts Institute of Technology (MIT) to bring personalized anesthesia monitoring and control systems to hundreds of millions of patients worldwide. They received 1.8 million in three grants and are located in the West End.<sup>12</sup>
- Located in Chinatown, AXONIS Therapeutics was awarded two grants totalling \$1.7 billion in FY2023. AXONIS is advancing breakthrough drug discoveries to develop first-in-class therapies for currently incurable neurological disorders.<sup>13</sup>

## Boston: Leader of a Regional Powerhouse

Boston continues to excel as a hub for biomedical research, with neighborhoods like the Longwood Medical Area and the West End playing a significant role in securing substantial NIH funding. In FY2023, the Fenway/Longwood area alone received an impressive \$1.4 billion in NIH funding, highlighting its prominence in the research landscape. **Boston benefits greatly from its collaborations with renowned institutions in neighboring cities and towns** across eastern Massachusetts. Cambridge, notably home to Harvard University and MIT, hosts premier research centers. In FY2023, Cambridge-based institutions se-

cured 643 NIH awards totaling \$453 million in funding. A prominent example of this collaboration is the Broad Institute, which unites researchers from Harvard, MIT, and five affiliated hospitals in Boston.<sup>14</sup> This collaborative effort underscores Boston's position as a leader in biomedical research and innovation. **Massachusetts as a whole received over \$3.5 billion** in NIH funding in FY2023, distributed across 5,920 awards. This remarkable funding, at \$502 per capita—nearly five times the national average—solidifies Boston's status as a regional powerhouse in life sciences research and development.

**FIGURE 7** NIH Funding by Boston Neighborhood and Massachusetts Town  
FY2023, in millions of dollars



Source: National Institutes of Health, "NIH Awards by Location and Organization," FY2023, BPDA Research Division Analysis.

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## Conclusion

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Boston boasts world-class hospitals, universities, and a thriving life sciences industry, supported by a highly educated workforce. Its researchers' commitment to advancing healthcare and quality of life has positioned Boston as a **leader in biomedical innovation and secured billions in funding from NIH**. This funding forms the cornerstone of Boston's groundbreaking discoveries in science and medicine.

Examples of notable achievements in FY2023, supported by Boston's NIH funding, include:

- Collaborative research by scientists at NIH and Massachusetts General Hospital unveiling a promising strategy against liver cancer, potentially paving the way for a novel class of anticancer medications.<sup>15</sup>
- Discoveries by scientists at Brigham and Women's Hospital and Harvard Medical School revealing a link between obstructive sleep apnea and increased cardiovascular risks due to reduced blood oxygen levels, emphasizing the need for targeted interventions to mitigate cardiovascular complications in affected patients.<sup>16</sup>
- Findings from researchers at Boston University's Chronic Traumatic Encephalopathy (CTE) Center highlighting the prevalence of CTE in young athletes and the need for further research on its impact and prevention.<sup>17</sup>

Boston's ongoing dedication to research and collaboration funded by NIH continues to drive **remarkable advancements in science and medicine**, shaping the future of healthcare on a global scale.

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